Impact of Capital Market Development on the Growth of the Nigerian Economy

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Introduction
The capital market refers to a network of specialized financial institutions, series of mechanisms, processes and infrastructure that, in various ways, facilitate the bringing together of suppliers and users of medium to long-term capital for investment in economic development projects (Al-Faki, 2006). It is simply an institutional platform or arrangement for raising medium to long-term funds needed to support real sector operations through the sale and purchase of medium to long tenured financial instruments. By offering a wide range of such instruments, economic agents are enabled to pool, price and exchange risks. Nwankwo (1991) posits that through assets with attractive yields, liquidity and risk characteristics, which are essential for government and other financial institutions in need of long-term funds, the capital market promotes savings in financial form. Basic economic theory postulates a direct and proportionate relationship between realized savings and realized investments. Higher rates of investments, all things being equal, lead higher rates of real growth.

The link between capital market operations and economic growth and development derives from the works of Adam Smith (1776), Bagehot (1873), Schumpeter (1912), etc who argue that a developed and efficient financial market is a condition precedent to growth in the real economy. Though there have been pockets of opposing views on the role of financial development in economic growth and development (see for example Robinson, 1952) and some refinements of the basic hypothesis on the finance-growth nexus (see Patrick, 1966, Calderon...
and Liu, 2003), there is a near consensus that a well-functioning financial sector is a pre-condition for the efficient allocation of resources and the exploitation of an economy's growth potential (Odeniran and Udeaja, 2010).

There is substantial evidence that the stock market plays a vital role in the economic health of most developed economies while developing economies rely extensively on the operations of the money market to drive their economic activities. This study seeks examine the effect of the capital market on the growth and development of the Nigerian economy. Specifically, it examines the effect of key stock market performance indicators like stock market capitalization ratio, value traded ratio and turnover ratio on output growth in Nigeria. Majority of earlier studies have either approached this issue through regression analysis or causality analysis. Both methods are employed to enhance the robustness of this study.

Review of Related Literature
The relationship between capital market development and economic growth derives from the supply-led theory of finance. According to the supply-led theory, developments in the financial sector determine the level of economic development because it resolves the financing needs of technological development required for real sector development. Okafor (2000), however, identifies lack of proper level and right mix of financing as major inhibitor of rapid development of the real sector in Nigeria. To enhance the performance of the sector, Okafor argues that its financing needs, for both capital investment and working capital, should recognized, provided for, and responded to promptly by the financial system.

Proper identification of the funding needs of the real sector is vital because it facilitates the selection of funding source. For instance, while working capital needs are best met by money market operators, the capital market is best suited for capital investment needs. Unfortunately, public and private sector investment financing in Nigeria appears to be skewed in favour of deposit money banks with obvious implications for monetary policy effectiveness, real sector performance, and capital market development.

As the long-term market for financial resources, the capital market offers long tenured financial assets with attractive yields, liquidity and risk characteristics to attract savings required by government and other investors in need of long-term funds. The capital market helps the government and corporate entities to raise long-term funds for financing new projects, expanding and modernizing industrial/commercial concerns (Nwankwo, 1991). A developed capital market, according to Levine (1991) reduces liquidity shocks of investors thereby enhancing the productive capacity of the economy and hence productivity growth through provision of capital used in production and by ensuring that capital is productively employed. The importance of the capital market to economic growth and development has also been emphasized by Ogwumike & Omole (1996), Adamu and Sanni (2005), Agarwal (2001), etc. An active stock market, according to Demirguc-Kunt & Maksimovic (1998) is an indication of a developed financial system. According to Tharawanji (2007) countries with deeper capital markets face less severe business cycle output contraction and lower chances of economic down turn compared to those with less developed capital markets.

Tachiwou (2010) examined the effect of capital market development on economic growth in the West African sub-region. He finds a positive impact of stock market development on economic growth in the long and short-term. Nowbutsing (2009) investigated the relationship between stock market development and economic growth in Mauritius. The study shows that in the short and long-run, stock market development positively impacts economic growth. Bolbo et al (2005) studied the impact of financial development on economic growth in Egypt using data over the period 1974-2002. They find that capital market development contributes significantly to economic growth in Egypt. Similar study by Beckaert et al (2005) also lends support to the growth-propelling impact of the stock market. Tharawanji (2007) studied the capital market with regard to severity of business cycles and probability of economic downturn. The study reveals that countries with greater capital market depth face less severe business cycle output contraction and have lower chances of experiencing a downturn compared to those with less developed markets.
Nieuwerbugh et al (2005) examined the relationship between economic growth and stock market development in Belgium. They find strong support of positive impact of capital development on economic growth. A similar study by Chee et al (2003) also reveals strong positive effect of the capital market on economic growth in Malaysia. They also find evidence that the stock market leads economic growth (supply-leading hypothesis) in Malaysia. Studies by Muhammed et al (2008) for Pakistan, and Liu and Hsu (2006) for Taiwan, Korea and Japan, produce evidence of positive impact of the stock market.

Coporale and Soliman (2004) investigated the causal link between stock market development and economic growth. The study shows that developed stock markets promote economic growth by identifying and financing profitable investment opportunities.


Studies by Obamiro (2005), Ezeoha et al (2009) show strong evidence of positive impact of the capital market on economic growth in Nigeria. However, Ezeoha et al (2009) reveal that while the stock market promotes economic growth through growth in domestic private investment flows, it has not been able to promote foreign private investment flows required for growth. However, Nyong (1997) shows that capital market development is negatively and significantly correlated with economic growth in Nigeria.

Ewah et al (2009) examined the effect of capital market efficiency on the growth of the Nigerian economy using data from 1961-2004. They did not find evidence of significant effect of the capital market on economic growth in Nigeria. The study by Adamu and Sanni (2005) shows that (i) The stock market has a significant positive effect on economic growth (ii) There is bi-directional causality between stock market turnover and economic growth.

Kolapo and Adaramola (2012) examined the impact of Nigerian capital market on economic growth using data over the period 1990-2010. They find that the Nigerian capital market impacts positively on the Nigerian economy. Ogunmuyiwa (2010) examined the causal link between stock market and economic growth in Nigeria using data over the period 1984-2005, he finds that changes in investors’ confidence and stock market liquidity cause change in economic growth in Nigeria.

Odhiambo (2009) examined the causal link between stock market development and economic growth in South Africa using the Autoregressive Distributed Lag (ARDL) Bounds testing technique. He finds evidence of causal impact of stock market development on economic growth. A similar South African study by Ndako (2009) based on the econometric technique of the vector error correction mechanism (VECM), however, shows evidence of causal impact economic growth on stock market development thereby raising some fundamental questions as to whether research outcome is a function of the nature of data and the method adopted in its analysis. Odhiambo (2009) employed annual data and ADRL technique while Ndako (2009) employed quarterly data for the same period on the same set of variables but adopted the analytical technique of the VECM.

Riman et al (2008) investigated the causal link between stock market development and economic growth in Nigeria. They find evidence of uni-directional causality from stock market to economic growth. Vazakidis and
Adamopoulos (2009) examined the causal link between economic growth and stock market development in France using the technique of VECM. The study shows that economic growth granger-causes stock market development.

Udegbunam (2002) examined the impact of trade openness and stock market development on economic growth in Nigeria. He finds evidence of strong positive impact of trade openness and stock market development on economic growth in Nigeria. Adjasi and Biekpe (2005) investigated the link between stock market development and economic growth using data from selected African countries. They find significant positive impact of stock market development on economic growth in the selected countries.

Methodology
Quantitative research technique based on ex-post facto design was adopted for the study. The study employed time series data, for the period 1981-2014, on GDP (proxy for economic growth), stock market capitalization, stock value traded, stock market turnover (proxies for stock market performance) and inflation (control variable). Research parameters were estimated using econometric methodology based on vector error correction (VECM) analytical technique at 5 per cent level of significance. The Granger causality test was conducted to determine the direction of causation, if any, between the dependent and independent variables.

Empirical Result and Discussions
Unit root results
Table 1: Philip Perron (PP) unit root test at levels and first difference

<table>
<thead>
<tr>
<th>Variable</th>
<th>PP Test @ Levels</th>
<th>PP Critical values</th>
<th>Test @ First Difference</th>
<th>PP Critical values</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>LGDPR</td>
<td>-2.657817</td>
<td>-2.957110</td>
<td>-6.169787</td>
<td>-2.960411</td>
<td>Integrated of order 1</td>
</tr>
<tr>
<td>LMCN</td>
<td>-0.881553</td>
<td>-2.957110</td>
<td>-5.868830</td>
<td>-2.960411</td>
<td>Integrated of order 1</td>
</tr>
<tr>
<td>LVTR</td>
<td>-0.809721</td>
<td>-2.957110</td>
<td>-5.355607</td>
<td>-2.960411</td>
<td>Integrated of order 1</td>
</tr>
<tr>
<td>LTOR</td>
<td>-1.579855</td>
<td>-2.957110</td>
<td>-5.605725</td>
<td>-2.960411</td>
<td>Integrated of order 1</td>
</tr>
<tr>
<td>LINF</td>
<td>-3.123005**</td>
<td>-2.957110</td>
<td>-9.493971</td>
<td>-2.960411</td>
<td>Integrated of order 1</td>
</tr>
</tbody>
</table>

*, ** Represents stationary trend at 1% and 5% level of significance

Result of the Phillip-Perron unit root test shows that GDP, market capitalization ratio, value traded ratio and turnover ratio are not stationary at their levels. This is evidenced by higher values of these variables relative to their calculated values. Only inflation rate showed evidence of stationarity at level. However, all the variables became stationary at first difference.

Table 2: Co-integration result

<table>
<thead>
<tr>
<th>Hypothesized No. of CE(s)</th>
<th>Eigen Value</th>
<th>Trace Statistics</th>
<th>0.05 Critical Value</th>
<th>Prob. **</th>
<th>Max-Eigen Statistic</th>
<th>0.05 Critical Value</th>
<th>Prob. **</th>
</tr>
</thead>
<tbody>
<tr>
<td>None *</td>
<td>0.626487</td>
<td>72.18706</td>
<td>69.81889</td>
<td>0.0320</td>
<td>30.52892</td>
<td>33.87687</td>
<td>0.1192</td>
</tr>
<tr>
<td>At most 1</td>
<td>0.492391</td>
<td>41.65814</td>
<td>47.85613</td>
<td>0.1685</td>
<td>21.01934</td>
<td>27.58434</td>
<td>0.2751</td>
</tr>
<tr>
<td>At most 2</td>
<td>0.385154</td>
<td>20.63880</td>
<td>29.79707</td>
<td>0.3805</td>
<td>15.07788</td>
<td>21.13162</td>
<td>0.2835</td>
</tr>
<tr>
<td>At most 3</td>
<td>0.152650</td>
<td>5.560921</td>
<td>15.49471</td>
<td>0.7467</td>
<td>5.134872</td>
<td>14.26460</td>
<td>0.7247</td>
</tr>
<tr>
<td>At most 4</td>
<td>0.013650</td>
<td>0.426049</td>
<td>3.841466</td>
<td>0.5139</td>
<td>0.426049</td>
<td>3.841466</td>
<td>0.5139</td>
</tr>
</tbody>
</table>

Source: Authors’ computation, 2015

Having established evidence of stationarity for the study observations, we proceeded to test for the existence of co-integrated series among the variables captured in the economic growth model using the Johansen and Jusulius (1990) co-integration procedure. Computed values for both the trace and max-Eigen statistic were compared with their respective critical values at 5 percent level of significance. The trace statistics revealed
evidence of a co-integrated series at 5 percent significance level. The existence of a co-integrated series suggests a tendency of the series not to drift apart over a long period of time.

**Table 3: Estimated long run co-efficients**

<table>
<thead>
<tr>
<th>Co integrating Eq: C</th>
<th>LMCR(-1)</th>
<th>LVTR(-2)</th>
<th>LTOR(-1)</th>
<th>LINFL(-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co integrating Eq: C</td>
<td>22.18028</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coefficients</td>
<td>-4.820982</td>
<td>4.748874</td>
<td>-5.404209</td>
<td>-0.154940</td>
</tr>
<tr>
<td>Standard Error</td>
<td>(2.97787)</td>
<td>(2.98487)</td>
<td>(3.02268)</td>
<td>(0.08467)</td>
</tr>
<tr>
<td>T-Statistic</td>
<td>[-1.61894]</td>
<td>[ 1.59098]</td>
<td>[-1.78788]</td>
<td>[-1.82984]</td>
</tr>
</tbody>
</table>

*Source: Authors’ Computation, 2015*

In table 3, the estimated long-run relationship between economic growth and capital market development shows significant effects of market capitalization, value traded ratio, turnover ratio and inflation rate on rate of economic growth. Further analysis of the evidence at lag1 shows a significant inverse effect of market capitalization ratio, turnover ratio and inflation rate on economic growth. The study also shows evidence of significant positive effect value traded ratio on economic growth at lag 2.

A percentage change in market capitalization results to 4.821 percentage change in economic growth rate holding other variables at constant. The estimated co-efficient for market capitalization indicates a high degree of the sensitivity of economic growth rate to the variations in market capitalization. The result in table 3 above shows that a percentage change in value traded ratio raises economic growth rate by 4.75 percent all things being equal. This implies that a proportionate change in value traded ratio leads a more proportionate change in economic growth in the right direction.

At lag1 a percentage change in turnover ratio leads to 5.4 percentage change in economic growth rate. A significant inverse relationship was observed between capital market turnover ratio and economic growth rate. Also, the degree of the responsiveness of economic growth rate to the variations in turnover ratio is highly elastic.

Inflation at lag 1 indicates a significant inverse relationship with economic growth rate. However, a percentage change in inflation rate results in a less than proportionate percentage change in economic growth rate. Specifically, a percentage change in inflation rate leads to 0.155 percentage change in economic growth rate. This indicates that the degree of sensitivity of economic growth rate to the changes in inflation rate is inelastic. Hence it be concluded from this study that market capitalization ratio, value of securities traded, turnover ratio and inflation rate are significant determinants of economic growth rate in the long-run.

**Table 4: Vector error correction model**

<table>
<thead>
<tr>
<th>Error Correction:</th>
<th>ECM (-1)</th>
<th>D(LMCR(-1))</th>
<th>D(LVTR(-2))</th>
<th>D(LTOR(-1))</th>
<th>D(LINFL(-1))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient</td>
<td>-0.911154</td>
<td>-4.324414</td>
<td>1.940394</td>
<td>-4.811092</td>
<td>-0.123985</td>
</tr>
<tr>
<td>Standard Error</td>
<td>(0.27173)</td>
<td>(1.34676)</td>
<td>(2.14642)</td>
<td>(1.41139)</td>
<td>(0.10559)</td>
</tr>
<tr>
<td>T-Statistic</td>
<td>[-3.35318]</td>
<td>[-3.21097]</td>
<td>[ 0.90401]</td>
<td>[-3.40876]</td>
<td>[-1.17424]</td>
</tr>
</tbody>
</table>

*Source: Authors’ Computation, 2015*

The result of the vector error correction estimates reveals the short run dynamics associated with the system. As could be observed in table 4 above, it appears that market capitalization and turnover ratios support a significant inverse relationship with economic growth rate while value traded ratio has a positive but not significant relationship with economic growth rate at first difference lag 2. The error correction term was correctly signed and statistically significant. The error correction model result shows that 91.12 percentage of the disequilibrium in the system could be corrected per time in the event of external forces acting on the system. This shows a relatively high speed of systemic adjustment and possibility of convergence of the system.
Granger Causality Analysis

**Table 5: Granger Causality Estimates**
Pairwise Granger Causality Tests
Date: 12/10/15   Time: 16:52
Sample: 1981 2013
Lags: 2

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Obs</th>
<th>F-Statistic</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>LMCR does not Granger Cause LGDPR</td>
<td>31</td>
<td>3.74781</td>
<td>0.0371</td>
</tr>
<tr>
<td>LGDPR does not Granger Cause LMCR</td>
<td></td>
<td>0.43296</td>
<td>0.6532</td>
</tr>
<tr>
<td>LVTR does not Granger Cause LGDPR</td>
<td>31</td>
<td>7.86157</td>
<td>0.0021</td>
</tr>
<tr>
<td>LGDPR does not Granger Cause LVTR</td>
<td></td>
<td>0.37747</td>
<td>0.6893</td>
</tr>
<tr>
<td>LTOR does not Granger Cause LGDPR</td>
<td>31</td>
<td>7.30085</td>
<td>0.0030</td>
</tr>
<tr>
<td>LGDPR does not Granger Cause LTOR</td>
<td></td>
<td>1.03155</td>
<td>0.3706</td>
</tr>
<tr>
<td>LINFL does not Granger Cause LGDPR</td>
<td>31</td>
<td>0.71653</td>
<td>0.4978</td>
</tr>
<tr>
<td>LGDPR does not Granger Cause LINFL</td>
<td></td>
<td>3.82757</td>
<td>0.0349</td>
</tr>
</tbody>
</table>

The Granger causality test shows evidence of uni-directional causality from (i) market capitalization ratio to GDP (ii) value traded ratio to GDP (iii) turnover ratio to GDP. These results imply that changes in these variables cause changes in output growth in Nigeria. There is also evidence of uni-directional causality from GDP to inflation. This is an indication that changes in output growth cause inflation level in the economy to change.

**Conclusion and Recommendation**
The vector regression estimates show sufficient evidence that the stock market significantly impacts economic growth in Nigeria in the short and long-run. This result is further reinforced by the Granger causality estimates that changes in stock market performance indicators induce change in output growth. It is therefore recommended that government should vigorously pursue the development of the capital market as a veritable source of long-term funds needed to support real sector operations,
References


Al-faki, M. (2006), The Nigerian capital market and socio-economic development, Public Lectures, University of Benin, Nigeria

Bagehot, W. (1973), Lombard Street, Homewood, IL: Richard D. Irwin


